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For Immediate Release

SIMULTANEOUS TESTING OF WINE CORKS REDUCES ANALYTICAL TIME

[Midland, MI] -- One of the nation's leading analytical labs has developed a new test regimen that allows barrier property testing of multiple wine cork samples simultaneously, drastically cutting the time needed to compare different closure materials and designs. The typical method of evaluating one sample at a time is considered by many to be a bottleneck in the development process of the competitive wine closure industry. With the new technique, Impact Analytical can test as many as twelve different natural or synthetic corks for permeability at once.

“Before we developed the new method, this type of evaluation meant tying up permeability testing equipment for a thousand hours for each individual test,” commented Rebecca Ortiz, Barrier Properties Lab Manager at Impact Analytical. “That’s impractical for most contract labs, and some would compromise by supplying data taken at 300 hours. But the test requires more than three times that long to reach equilibrium, so obtaining truly meaningful results means a duration of over 40 days. Cork suppliers typically want to test a number of different samples, and now we have a way to do that much more efficiently,” she said.

“In the past, the 1000-hour test duration had to be multiplied by the number of samples, and lead times quickly became extended to several months when just a few different materials or closure sizes were being tested,” explained Ortiz. “Even with two permeability instruments running at the same time, a comparison of just six different samples would have required about four months to complete. Now we can analyze all six at once, in a single 41-day test.”

Ortiz cites development of the new capability as a sign of the market’s growth. “Closure analysis has become such a big part of our business that we’ve created dedicated cork testing facilities,” she said. Impact Analytical offers a number of techniques for measuring gas and vapor transmission of packaging materials, including the ability to test Oxygen Transmission Rate (TR), Carbon Dioxide TR and Water Vapor TR. All procedures are carried out in a controlled environment that eliminates the variability introduced by testing at ambient temperature and humidity.

Supreme Corq

The announcements come as good news to manufacturers like Supreme Corq, Inc. (Kent, WA), a leading U.S. producer of synthetic corks with over 1,000 wineries on its customer list in more than 30 countries around the world. The company’s closures are made from a biomedical-grade thermoplastic elastomer, the same material used in critical equipment such as heart valves, syringes and medical tubing.

With about 40% share of the estimated one billion synthetic corks sold annually, Supreme Corq has an understandable interest in technology that can help the company stay ahead of its competition. “Reliable testing of new closure materials and designs is critical to us,” said

Supreme Corq Product Engineer Ana Hueto. “We rely heavily on this data to help us continually improve our products and manufacturing processes.”

As the debate continues over natural vs. synthetic closures for wine, competing manufacturers are frequently turning to contract testing facilities for intensive study of new and existing products, as well as those of their competitors. “Supreme Corq subjects its closures to some of the most rigorous testing of any product on the market,” Hueto observed. “We strive to understand every detail of the closure, from its manufacture and use, all the way through recycling.”

In addition to barrier property testing on a number of different samples, Supreme Corq also calls on Impact Analytical for taste and odor evaluations to determine the possibility of “flavor scalping” that might be caused by various materials. Scalping is defined as the absorption of flavor components into the cork to a degree that allows a consumer to sense a difference in taste.

As part of the evaluation, Impact Analytical uses GC-MS (gas chromatography and mass spectrometry) technology to provide accurate molecular weight measurements and facilitate structure determination. In GC-MS, the sample material is first separated by a gas chromatograph. Upon entering the MS column, the components in each peak are identified by their molecular ion and fragmentation pattern. The results tell Supreme Corq whether a specific material sample is capable of absorbing components of the wine and thereby altering its flavor.

But cork science doesn’t stop there. Supreme Corq also utilizes the lab’s capabilities to evaluate closure properties that determine how hard a consumer will have to pull on a specific cork to extract it from a bottle. “We examine not only physical characteristics such as barrier properties

and molecular structure, but also surface properties and aging tendencies that could affect extraction force,” Hueto confirmed.

“Engineers at Supreme Corq are well aware that surface characteristics of a closure affect its extraction force,” said Impact Analytical Technician Matt Stephenson. “Our microscopy lab has been able to establish a baseline surface morphology for their production corks, and also check the consistency of surfaces from lot to lot. The results allow Supreme Corq to vary the closure surfaces and optimize the extraction force over time with confidence.” In an industry continuously battling cork taint from TCA, a fungus-produced compound which grows in natural bark fiber, synthetic closures are seen by many as the solution to a problem that ruins an estimated 5% of all wines. With help from their analytical partners, companies like Supreme Corq are helping to preserve both the wines they seal and the tradition of the cork closure.

For more than 25 years Impact Analytical has provided extensive problem-solving capabilities, detailed analysis, and method development to customers in manufacturing and academia. The company’s experienced technical personnel also help customers implement quality control programs, certify suppliers, and characterize unknown materials. With considerable resources in specialty chemicals, Impact Analytical maintains resident expertise in product formulation, process engineering, packaging and physical properties testing.

For more information, contact:

Gary Deborski, Market Development Mgr.
Impact Analytical
1910 W. St. Andrews Rd.
Midland, MI 48640-2696
Phone: (989) 832-5555
FAX: (989) 832-5560
Email: info@impactanalytical.com
Web site: www.impactanalytical.com

For editorial assistance, call:

Rick Felde / (503) 534-0800